No 102 C.

#11

good

An
Inaugural Essay
On
Intermittent Fever
By
Caspar Wistar
Pennsylvania

Passed March 25 1824
W. R. H
Dean

Perhaps in the whole catalogue of human diseases no one has been more fully described or frequently discussed, than the Intermittent Fever.
In most parts of our Country it is one of the first Complaints attracting the attention of the Student, and continually presenting to the notice of almost Every Practitioner. Yet notwithstanding its frequency of occurrence, and our intimacy with its symtoms and treatment, the exact nature of its Causes has never been fully understood. I say Causes for I think it will be readily admitted that it may be produced by more than one Cause.
From time immemorial Intermittent Fever has been Considered as depending nearly Altogether for its existence on Miasmata or marsh Effluvia. I think this idea will not be tenable by any one, who will Consider the diversity of climate soil and Circumstance un=

un
thi
dis
Boa
I b
to a
ten
Put
to
pr
bel
Cou
At
I
Nan
De
pa
Co
Au

under which this disease has appeared among us for the last three years, and during seasons of so totally different & diversified a nature. That marsh effluvia may produce this Complaint I make no doubt, may I believe wherever this effluvium abounds, it will to a certainty create more or less of it. At the same time it appears impossible to attribute all the Intermittent we have had for the last few years to marsh miasmata, In fact I have known its prevalence in such situations, where no one could believe it possible noxious effluvia could be its Cause, and where (until within the last three years) it has been wholly unknown for thirty years past. I allude particularly to that fine tract of Country ranging from the Schuylkill on the west to the Delaware on the East. Commencing at the Pene=pack and stretching North & East through the County of Bucks. this range is perhaps as fine and salubrious as any part of our Country, the

Streams are for the most part bold and rapid in their course, confined to their channels by steep and precipitous banks, forming but little or no meadow or marshy ground, not sufficient to generate enough effluvia to injure the country to any extent. Over much of this tract I have travelled "on foot" and was induced to consider it as one of the strong and almost inaccessible fortress of Health. Yet ~~than~~ this, few parts of our country suffered more from the intermittent. I am also acquainted with some parts which have long been noted for the prevalence of this complaint, which escaped nearly altogether during the general invasion last summer, Salem N. J. is a remarkable instance of this nature, the last season when the disease was ravaging every other part of the state Salem hitherto the very nidus of "fever & ague", experienced almost an entire exemption.

This is more extraordinary bewing the situation of this little town surrounded as it is by extensive marshes

meadows and ponds of stagnant water. Inspec=
=ting this location during the last summer it ap=
=peared to me if miasmata could claim indisputable
sovereignty over any place upon Earth, surely here
was the spot. Yet as above stated Salem remained
almost free from the scourge.

Another circumstance has forcibly presented to my
mind opposing the idea of unity in the cause of
Int & Remittent fever. viz, the remarkable difference
of the summers of 22 and 23. the summer and first
autumn months of 22 were extraordinary for their
great heat & dryness so much in places the danger
to our domestic animals seemed really immi=
=nent from the scarcity of pasturage and the dimi=
=nution of the waters. (the preceding summer also
was of this kind tho' not so uniformly hot and
dry) in this then the summer of 22 the Inter and
Remittent fever (for they were much alike both of a
bilious nature and frequently running into each

other) pervaded to a great degree the Western and Middle States. The Summer of 22 was the exact Counterpart of the two preceding - uncommonly mild and pleasant in temperature, at no one time was the heat or dryness of sufficient duration to injure the herbage or affect the springs. Yet behold under every diversity - the very same Epidemic raging through the same territories, possessing the same attributes, and stamped by the same characteristics. There was this difference however, it commenced for the most part a month earlier rather more highly bilious and I think when once it laid hold on a patient it was rather more tenacious - not more obstinate or difficult of cure but more apt to recur when cured.

It may be said by some that the difference of the seasons of 22 and 23 operating in a different way would ultimately produce precisely the same effect on the marshes and low grounds enabling them to engender the same quantum of deleterious effluvium

Bet
Ma
an
the
the
fl
Sa
co
pr
Ann
had
the
Re
Do
Ann
Lo
la
Ch
ha

Be this as it may - it will hold good only as regards marshy situations - but will not account for the high and dry inland districts, being equally affected by the disease in seasons so very dissimilar - for tho' there can be no doubt that the Exhalation from the Earths surface will be greater in moist seasons, yet the difference will not be so great as we would a priori suppose. for it has been proved by positive Experiment that when the immediate surface is apparently free from moisture, great exhalations are admitted from the depths of the Earth, the quantum has been calculated and has been reported by Sumner in his work on Botany to be 300 gallons from an acre in 24 hours, on an average throughout the Year.

I cannot agree with some who consider this exhalation from the Earth as so injurious to the human Constitution - it is unceasing and natural so even by habit we would be able to resist it. again were this

a Ca
Con
Con
is o
Th m
the Ca
wo
as lo
I ho
ner
Duly
Spoi
Spe
de
of
Spa
ig
-ile
ea

a cause of fever we should in every situation be continually destroyed by its effects, seeing that it is in continual operation in every place where the surface is not frozen -

It might be considered as I object to these as the causes of this complaint, that I should state what are the true causes, this indeed would be as little as could be expected. little as it is however I shall wave it for the moment. for as yet I have never been able to satisfy myself on this point - I will only say when the intermittent fever exists in the epidemic form as it has done for the last three years, it seems probable that it depends on some distemperature of the atmosphere, but the cause of such distemperature, its nature or exact modus operandi on the system, I confess myself wholly ignorant. The theory of animalculae is only plau-sible because we know so little of them whether they really exist or not, that we are disabled from dispo

disproving it, by any positive facts, and indeed this appears pretty much the amount of all we can say on the vague and uncertain theory of distemperature of the air as a cause of this fever. Some have supposed all Epidemics to depend on causes of this nature. this is making the atmospheric air subject to very many and diversified distemperatures. and yet we know the most accurate Chemists have never been able to discover these changes by their ingenious experiments. On this subject I could wish to enlarge but being altogether speculative, it would occupy more time than in propriety could be allowed in a paper of this nature.

Let the cause of Intermittent Fever be what it may I am utterly at a loss to say in what manner the peculiar features of the disease are induced acting in the first instance on that prime mover, and centre of vitality the stomach - to whose myste=

mysterious guidance every part of the system appears to observe the most severe obedience, the morbid actions here induced are by the mystic power of sympathy conveyed throughout the whole system. but how & in what ~~precise~~ precise manner all this is done, how a chill and then a fever &c and these recurring at certain and defined intervals of time, I believe has never been intelligibly explained - nor will this be done with our present stock of physiological knowledge.

It has been asserted that exposure to cold particularly when combined with moisture is one source of this complaint - I am disposed however to think that this is a very rare cause else we should meet with it oftener in high latitudes and also in the middle of winter. On the contrary it is a complaint almost peculiar to warm climates and to the warmer seasons of the year!

It is fortunate for us that the treatment of intermittent fever is far better understood

than the nature and modus operandi of its causes.

In pursuing my remarks on intermittent fever. it might here be thought incumbent on me, to give a regular and succinct account of its annals as well as the various treatment which it has met with in different periods of its history - this however I do not contemplate I shall confine myself to the symptoms progress and terminations of the disease

By nosological writers numerous divisions and sub divisions have been made of Int. fever, which are abundantly too nice for any purposes of practical utility - thus we have the quotidian, tertian quartan the double tertian the double quartan & the triple tritan triple quartan & and some have extended the term to a much wider period thus the hebdomadal, the menstrual, bimenstrual, and even yearly (annual) on these statements no one can now place much reliance

for if such ever did occur it must have been casual and to be accounted for only on the doctrine of chance. It certainly does happen that from some cause or other these primary forms of intermittent vary very much so indeed as to assume the appearance of one or other of the above mentioned forms - But whenever the recurrence of the paroxysm becomes so irregular they have been called erratica under which general title should be included all these varieties -

The only legitimate forms then are the Quotidian, Tertian, and the Quartan. It was the opinion of the celebrated Fordyce that the tertian was the only primary form, all others being merely varieties of this — Of these three forms the tertian is said to appear most frequently then quotidian lastly the quartan which is rare

It has been said moreover the quotidian mostly makes its appearance in the morning the tertian at noon and the quartan in the evening.

nder wh
appear a
of one bro
nor yon
eating
described
in haste
recorded
h Min
tural,
nd. Sh
nes th
tion of
g the pa
difficu
hidity
ection
in Stats
ustin

Under whatsoever form an Intermittent may make its appearance, the general symptoms are similar, and are such as attend upon the three stages into which a paroxysm may be resolved viz, the hot Cold and sweating stage. It would be superfluous minutely to describe these symptoms, for connection's sake I will hastily sketch them. The Cold stage is generally preceded by a sense of weariness of and oppression of both mind and body - the pulse is rather weaker than natural, with a dull obtuse pain in the head back and loins. Shilliness now seizes the patient. the surface becomes shrunken pale, and rough, imparting the sensation of cold when the hand is applied, these increasing, the pulse becomes weaker and quicker with more or less difficulty of respiration, nausea or vomiting with torpidity of mind, all the animal functions impeded secretion and excretion stopped, or much deranged this state of things continues for two three or four hours sometimes a shorter period - then some of these symp

symptoms abating, gradually go off, thus the chilli=
ness gives way, pulse slower and fuller the surface
relaxed and turged, secretions partially restored, respi
ration more easy. the nausea is sometimes increased
at this period and large quantities of bile are discharg
=ed by mouth, pain in back &c increased head much af=
=fected sometimes coma or delirium - these increasing
from the hot stage, which lasts from four to twelve hours
it is often proportioned to the duration or violence of the
cold stage, this tho' a general fact is not invariable for in=
=stances are on record where the cold stage was wholly
wanting or scarcely perceptable. as these symptoms going
off the sweating is now ushered in by a perspiration
appearing on the surface, pulse is soft and natural the
skin soft and moist, pain ceasing or diminishing,
and all the animal functions become natural,
this puts an end to the paroxysm, and for the most
part the patient falls into a refreshing sleep, in this
stage the bowels mostly discharge their contents, with

large quantities of bile, the urine is also plentiful, depositing a lateritious sediment, these then are the most striking symptoms constituting a paroxysm, and the patient now remains as well as usual until the next paroxysm, which is sooner or later according to the type of the disease — As now described are the appearances in a plain case of Intermittent Fever. But in many instances we meet with others which would tend very much to harass the Practitioner was he unacquainted with their nature, these anomalous symptoms were very common during the wide spread prevalence of the Epidemic of our last summers. these anomalous symptoms may be either of a positive or negative nature, thus an Intermittent might Exist without a Cold a hot or a sweating stage, the absence of one of these stages would form a negative symptom — These anomalies are very diversified and to describe them would be to add to a regular attack of Intermittent, symptoms of almost every other known di

diseases so diversified are they –
When this fever is epedemic nothing is more common than for it to be complicated with, or at least for it to take on the form of, the diseases which may be then prevalent, hence we have it associated with dysentary, diarrhoea, hepatitis &c during the last season a case of Intermittent fever under my notice attended by complete loss of vision
The patient an Elderly lady of very delicate constitution. attacked with obscure intermittent, in twelve hours from her first attack her sight was totally gone. at this time there was no appearance of nausea – in preference then to disturbing this organ by an Emetic, I waited the operation of Calomel gr xij which I had previously administered, in less than an hour from its loss her vision was restored I attributed this to the operation of the Calomel conveying the bile from the stomach to the intestines. thus relieving the stomach.
What was singular in this instance the Patient

never experienced a complete cold stage. the attack from the commencement assuming a low form associated with periods of great exhaustion, so much so stimulants were resorted to every half hour, this I thought proceeded from the narcotic impressions made on the stomach by the bile and thence extended to the whole nervous system - for this the stomach did not appear much affected in the first instance a long time elapsed before its wonted capacity for digesting accustomed food was restored -

Here it may not be amiss to say a word or two on the Prognosis and diagnosis of the complaint -

In the commencement if the paroxysm be severe and of long duration - the asphyxia short and incomplete it will be unfavourable for the strength of the patient.

great irritability of stomach particularly if it leads to inflammation of that viscus is unfavourable, this sometimes happens and the patient is utterly unable to retain any active medicines. and the irritation and

inflammation, gon until the patient sinks prostrate — such a case took place in my neighbourhood last summer where a very intelligent Practitioner declared every thing he could devise was utterly incapable of allaying the irritability of the stomach, and the patient sunk exhausted — He had in a low enfeebled state of Intermittent of some standing indulged too far his appetite producing as was supposed irritation & inflammation of stomach, tho' never ascertained by post mortem Examination —

A disposition in this fever to run into a ~~low~~ Continued form is also unfavourable hence a quotidian is more difficult of Cure than a tertian a tertian than a quartan — Delirium and Coma are mentioned by some as unfavourable occurrences — Lind when speaking of the Epidemic of Bengal says, when delirium occured as an early symptom the patients generally died in the fourth paroxysm — last summer while in the Country one of my neighbours

sent for me, I found him labouring under an attack of irregular intermittent. when I saw him he had a full tho not a tense pulse, about sixty five, a wild affrighted appearance, and slight delirium, I at once took from his arm eight or ten ounces of blood, this relieved him immediately. he was on the use of astringents for what he called a dysentary - which on inspection proved a diarhoea the discharges consisting chiefly of bile tinged with blood - presuming this a natural effort of the system to rid itself of the offending cause I cut off the astringent articles, allowed the bile to purge him thoroughly, and he soon got entirely well. here then was delirium from the very onset of the attack and yet a milder case I never saw. The favourable omens are the reverse of the above. Of the diagnosis of this complaint nothing need be said - there is but one disease with which it can be at all confounded viz Hectic fever - indeed there is no similarity existing between the two, saving each is preceded by a

Chill followed by a fever sweating &c - Intermittent fever attacking a previously weak or debilitated Constitution may be considered unfavourable - tho- here there are some exceptions - for it has happened that Asania and Phthisis have been Cured or much relieved in this way - As above described then after the Complaint has fairly set in it will run a longer or shorter Course depending on the practice instituted —

If the vitality of the Constitution has not been previous =ly impaired, in a great majority of cases this Com= =plaint will terminate happily, it will however sometimes happen in opposition to the best devised plan of treatment and the most assiduous endeavours that some of these Cases will prove very obstinate and unyielding continuing for a great length of time in an irregu =lar manner, gradually wearing down, and under =mining the strength of the patient. and even when finally relieved it will be found to have laid

the foundation for other and more dangerous complaints which in course of time may carry off the Patient. Hence as sequalae to Intermittent fever we have to contend with general and local dropsies. Splenitis, Hepatitis, congestions, typhoid fever, and other low forms of disease.—

I shall now enter on the treatment of Intermittent this has been exceedingly various in different countries and in different stages of the world. It would be wholly without my province in this place to detail the obsolete and fantastic treatment to which this fever has been subjected at different times - and still more to the absurd and antiquated theories upon which such treatment was founded - I shall therefore content me by reviewing the most appropriate practice of the present time - particularly such as I have had an opportunity of seeing myself -

The treatment naturally divides itself into that proper during a paroxysm and that during the

apyrexia. the treatment varies also in the different stages of the paroxysm. Thus in the cold we can do very little and fortunately very little is here required. the only indication is to bring about the hot stage as soon as possible. warm drinks, warm applications, sinapisms, emetics &c are sometimes had recourse to, these means are not to be pushed so as to increase the expected hot fit. emetics are doubtful in this case particularly if the depression be great. When the hot stage has been induced our indications are no less plain than in the former, viz to allay fever and irritation and guard against bad determination. to fulfil these indications - first then venesection is in many instances to be resorted to and this second most naturally but from a very limited observation this appears to me very seldom requisite, particularly as the disease appeared last summer. I am informed some highly respectable Practitioners very rarely or never employed it. when however the head is much affected or other

local determinations threaten the lancet must not be neglected. On the contrary it here stands preeminent among our remedial resources. to relieve irritation and calm excitement an Emetic may follow the bleeding this has been the established mode of commencing the treatment of Intermittent for a long time -
active purges not only relieve the stomach and bowels of thier irritating contents, but also detract from the circulating mass of fluids. Various cooling diaphoretics are now also resorted to - I do not know whether I get the idea from hearsay or reflection - but it has often appeared to me when walking the wards of our Hospitals and being patients at the same time under the effects of purgative medicines - also taking various diaphoretic articles and ~~observing~~ observing the difficulty of producing purgation as well as perspiration under such circumstances - that this plan must certainly be erroneous - for it is most generally admitted that most of our remedies act by a stimulating

operation directly or indirectly. It is however said that two operations of dissimilar nature cannot go on in one and the same system at one and the same time without interfering, if this be true this practice rests not on sound physiological views. It is stated some where, and apparently with some force, that the exhibition of purgatives during the hot stage, at least is of doubtful efficacy tending to increase the heat and irritation. a priori this appears rational I however have never witnessed these ill effects. admitting it to be the case, we are in a greater dilemma than ever, what are we to do. It certainly would be productive of more injury and irritation to allow the noxious contents of the stomach and bowels to remain until a solution of the fever, than to risk the evanescent irritation of a purge. again in continued fever and other diseases we do not experience their ill effects, and if we did we could not omit them. the first passages being cleared we endeavour to bring about a perspiration

by internal and external means this once accomplish-ed we have a solution of the paroxysm - and this brings me to the treatment for preventing a return of it - and which constitutes the grand indication. all else being merely palliative -

This indication is to be answered first, by a strict attention to diet, air, and exercise, 2nd by our tonic remedies, and it may not be amiss to remark unless the most scrupulous attention be paid to the exact observance and proper regulation of the regimen all our best endeavours with other means, will in nine out of ten cases prove nugatory and unavailing. and as the complaint, let the cause be what it may appears to originate in the stomach, that side is mostly found in a debilitated and weakened condition. hence the diet should be very much as in dyspepsia except it may be stronger and allowing a greater latitude of choice - this like other rules admits of exceptions for oftentimes will be perceived an evi

evident inflammatory diathesis prevails, in such case the diet should be simple and weak, until aided by venesection and purging &c we overcome such tendency, this disposition is not unfrequent in vernal Intermittents- having now obviated all objections we come to the use of Tonics -

Of all the points of argument in this disease no one had given rise to more difference of opinion than the question at what period of the complaint or in what precise state of system are we to commence with Tonics?

As far as my judgement will go this period is by no meand a fixed one, It is varied by several circumstances viz 1st Season of the Year - 2nd Nature of the Epidemic - 3rd climate - 4th age of Patient - 5th Constitution - Season - It has just been remarked that an inflammatory diathesis is generally attendant on vernal Intermittents here then we are prevented from resorting to tonics until such condition be more or less allayed and before we can accomplish this in many cases, the second or third fair

paroxysm may have passed by - here then we cannot use tonics until the third apyrexia - Of the Cases which have fallen under my immediate Cognizance I saw but One in which I resorted to the Peruvian Bark until after the second apyrexia - In the latter part of Summer we see but little of this disposition On the other hand an Opposite tendency is more to be dreaded in some of these Cases we administer tonics from the very Commencement. Indeed it was the Opinion of the Celebrated Heberden that Bark was not injurious in any period or in any stage of the Complaint —

Nature of the Epidemic - This differs in different Seasons. thus at one season it will be ~~of an~~ inflammatory at another not so, or even typhoid. in the one case we resort after two or three paroxysms in the other much earlier to tonic remedies —

Climate — In hot climates it is for the most part more malignant and rapid in its progress — so much so some writers on tropical climates assert that in some

instances - they have recourse to tonics immediately one author (whose name I dis-remember) says he administered the Bark before the remission was complete - and says he was obliged to do so on account of the great tendancy of that climate (some one of the East Indies) to run into a low form - again other places are recorded where the bark was given before any attention had been paid to cleansing the alimentary canal -

Age - The proper period for commencing with tonics is different in Children from what it is in adults in Children it is more apt to be inflammatory. and we defer their use for some days in old people the converse will be found equally true -

Constitution - The diversity in the constitutions of different patients will also vary this period - thus in stout robust patients it will be best to prepare the system ere we pour in bark or other tonics, while debilitated and cachectic habits will not bear with impunity this delay - the stomach also is at times in so irritable a

a condition that much time escapes before we can get it to retain our remedies. It may I think be stated as a general rule in this climate that tonics should not be used until by our antiphlogistic measures we shall have subdued all inflammatory disposition and the stomach thoroughly cleared of all noxious contents.

Tonics: There are but few articles of the Mat-Medica which have not at some time or another been introduced as a tonic into the treatment of Intermittent fever. And not a few of them during their ascendancy were considered as specific. At the present day Practitioners habitually rely on the Peruvian Barks for the cure of this disease and except under certain peculiarities of circumstance it will be found sufficient for this purpose when aided by attention to the general system. On this account then and to the objection I feel to swelling the bulk of this essay further than I can avoid I shall confine myself chiefly to this substance as a tonic. Cases do now and then

occur however - when it will be necessary to change this remedy - and resort to some other until the susceptibility of the system is again awakened to the bark - Several of the preparations of the Bark are now made so exceed=ingly neat and so concentrated as scarcely to offend the most delicate stomach and on this account only are to be preferred to the bark in substance, which when the stomach will bear it, is the most efficacious mode of administration -

Bark may be given in substance infusion decoction tincture &c in various extracts sulphate of Quinine &c and in long continued cases it will be advantageous to change from one to the other to prevent the influ=ence of habit - or even to lay it aside for a time sub=stituting some other tonic as serpentaria virginiana given in the same shapes as we do the Bark - a combination of these two articles particularly with the Carbonate of Ordae has been highly recommended

The Eupatorium Perfoliatum has long been advan=

advantageously used in some parts of our country and is also recommended in regular practice as a substitute for Peruvian Bark. It is certainly a valuable article, but from what I have seen, should be prescribed with caution. Nothing is more common in domestic practice in the country than to make a decoction of it and desire the patient to drink as much of it as he can — if the decoction be very strong this will at times produce violent vomiting, purging, and sweating &c
Many other articles both native and foreign have been introduced as auxiliary to, and substitutes for Peruvian Bark. few of them now are ever found requisite. Some astringent remedies had at one time acquired credit in the cure of this disease, as the sulphate cupri, acetas plumbi. Kino. Catechu alumde. Arsenic too has held a very high reputation, but from the known effects of this remedy on the system I suspect it has been very improperly classed among the tonics —

In certain obstinate and protracted cases of this complaint especially when depending on various irregularities, producing relapse after relapse, it will sometimes happen that this course of treatment will altogether fail as such cases have been successfully treated by mercury breaking up and destroying the morbid peculiarity of system, upon which the disease now depends: even if a salivation does not effect so much it will probably place the system in such a condition that a recurrence to tonics will now finish the cure

When such means prove abortive it has been recommended to send the patient on a long journey and by thus changing his air, food, exercise, scenes and company to bring about a revolution of his whole system this will meet our most ardent expectation, in some cases, but unfortunately in others after a protracted bilious intermittent the poor patient will be too much debilitated to comply with such advice